

## INTERNATIONAL COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

Date of mailing (day/month/year)

11 August 2000 (11.08.00)

From the INTERNATIONAL BUREAU

To:

BILL, Kevin  
 AstraZenaca  
 Global Intellectual Property  
 Mereside, Alderley Park  
 Macclesfield  
 Cheshire SK10 4GR  
 ROYAUME-UNI

Date of mailing (day/month/year) 11 August 2000 (11.08.00)	Applicant's or agent's file reference PHM 70478/WO	<b>IMPORTANT NOTIFICATION</b>
International application No. PCT/GB00/00357	International filing date (day/month/year) 08 February 2000 (08.02.00)	

1. The following indications appeared on record concerning:

the applicant     the inventor     the agent     the common representative

Name and Address  ASTRAZENECA UK LIMITED 15 Stanhope Gate London W1Y 6LN United Kingdom	State of Nationality GB	State of Residence GB
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

the person     the name     the address     the nationality     the residence

Name and Address  ASTRAZENECA AB S-151 85 Södertälje Sweden	State of Nationality SE	State of Residence SE
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

the receiving Office     the designated Offices concerned  
 the International Searching Authority     the elected Offices concerned  
 the International Preliminary Examining Authority     other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Mougamadou ABIDINE  Telephone No.: (41-22) 338.83.38
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## PENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

Date of mailing (day/month/year) 11 August 2000 (11.08.00)	To:  BILL, Kevin AstraZeneca Global Intellectual Property Mereside, Alderley Park Macclesfield Cheshire SK10 4GR ROYAUME-UNI
Applicant's or agent's file reference PHM 70478/WO	<b>IMPORTANT NOTIFICATION</b>
International application No. PCT/GB00/00357	International filing date (day/month/year) 08 February 2000 (08.02.00)

1. The following indications appeared on record concerning:

the applicant     the inventor     the agent     the common representative

Name and Address  BILL, Kevin Global Intellectual Property AstraZeneca UK Limited Mereside, Alderley Park Macclesfield Cheshire SK10 4TG United Kingdom	State of Nationality	State of Residence
	Telephone No.	+44 1625 512461
	Facsimile No.	+44 1625 583358
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

the person     the name     the address     the nationality     the residence

Name and Address  BILL, Kevin AstraZeneca Global Intellectual Property Mereside, Alderley Park Macclesfield Cheshire SK10 4GR United Kingdom	State of Nationality	State of Residence
	Telephone No.	+44 1625 512461
	Facsimile No.	+44 1625 583358
	Teleprinter No.	

3. Further observations, if necessary:

3. Further observations, if necessary:
--

4. A copy of this notification has been sent to:

the receiving Office     the designated Offices concerned  
 the International Searching Authority     the elected Offices concerned  
 the International Preliminary Examining Authority     other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Mougamadou ABIDINE  Telephone No.: (41-22) 338.83.38
---	--

## PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION  
(PCT Rule 61.2)

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C.20231  
 ETATS-UNIS D'AMERIQUE

; in its capacity as elected Office

Date of mailing (day/month/year) 04 October 2000 (04.10.00)	
International application No. PCT/GB00/00357	Applicant's or agent's file reference PHM 70478/WO
International filing date (day/month/year) 08 February 2000 (08.02.00)	Priority date (day/month/year) 11 February 1999 (11.02.99)
Applicant LITTLE, Stephen et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:  
30 August 2000 (30.08.00)

in a notice effecting later election filed with the International Bureau on:  
\_\_\_\_\_

2. The election  was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer Zakaria EL KHODARY  Telephone No.: (41-22) 338.83.38
---	--

RECEIVED

12 MAY 2000

ASTRA ZENECA PLC  
GLOBAL INTELLECTUAL PROPERTY

PCT/GB00/00357

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE

(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

Date of mailing (day/month/year)  
05 May 2000 (05.05.00)

From the INTERNATIONAL BUREAU

To:

BILL, Kevin  
Global Intellectual Property  
AstraZeneca UK Limited  
Mereside, Alderley Park  
Macclesfield  
Cheshire SK10 4TG  
ROYAUME-UNI

Applicant's or agent's file reference  
PHM 70478/WO

IMPORTANT NOTIFICATION

International application No.  
PCT/GB00/00357

International filing date (day/month/year)  
08 February 2000 (08.02.00)

1. The following indications appeared on record concerning:

the applicant     the inventor     the agent     the common representative

Name and Address

ZENECA LIMITED  
15 Stanhope Gate  
London W1Y 6LN  
United Kingdom

State of Nationality

GB

State of Residence

GB

Telephone No.

Faximile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

the person     the name     the address     the nationality     the residence

Name and Address

ASTRAZENECA UK LIMITED  
15 Stanhope Gate  
London W1Y 6LN  
United Kingdom

State of Nationality

GB

State of Residence

GB

Telephone No.

Faximile No.

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

the receiving Office

the designated Offices concerned

the International Searching Authority

the elected Offices concerned

the International Preliminary Examining Authority

other:

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

Lazar Joseph Panakal

Facsimile No.: (41-22) 740.14.35

Telephone No.: (41-22) 338.83.38

**RECEIVED**

21 AUG 2000

ASTRA ZENECA PLC  
GLOBAL INTELLECTUAL PROPERTY

**NOTIFICATION OF THE RECORDING  
OF A CHANGE**

(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

Date of mailing (day/month/year) 11 August 2000 (11.08.00)	ROYAUME-UNI
Applicant's or agent's file reference PHM 70478/WO	<b>IMPORTANT NOTIFICATION</b>
International application No. PCT/GB00/00357	International filing date (day/month/year) 08 February 2000 (08.02.00)

- 1. The following indications appeared on record concerning:**

the applicant       the inventor       the agent       the common representative

Name and Address  ASTRAZENECA UK LIMITED 15 Stanhope Gate London W1Y 6LN United Kingdom	State of Nationality  GB	State of Residence  GB
	Telephone No.	
	Facsimile No.	
>	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

the person       the name       the address       the nationality       the residence

Name and Address  ASTRAZENECA AB S-151 85 Södertälje Sweden	State of Nationality  SE	State of Residence  SE
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

- 3. Further observations, if necessary:**

4. A copy of this notification has been sent to:

the receiving Office

the International Searching Authority

the International Preliminary Examining Authority

the designated Offices concerned

the elected Offices concerned

other

<p><b>The International Bureau of WIPO</b>  <b>34, chemin des Colombettes</b>  <b>1211 Geneva 20, Switzerland</b></p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p>  <b>Mougamadou ABIDINE</b>
---	--

## PATENT COOPERATION TREATY

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## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PHM 70478/WO	<b>FOR FURTHER ACTION</b>		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB00/00357 <i>OK</i>	International filing date (day/month/year) 08/02/2000 <i>OK</i>	Priority date (day/month/year) 11/02/1999	
International Patent Classification (IPC) or national classification and IPC C12Q1/68			
Applicant ASTRAZENECA AB et al			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

CODE	DATE	NTD

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

RECD	26 MAR 2001	GIPS
DATA	ENTERED DPL	I.L.
FINAL	CHECK	

Date of submission of the demand 30/08/2000	Date of completion of this report 22.03.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Tilkorn, A-C Telephone No. +49 89 2399 8688



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00357

## I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

### Description, pages:

1-45 as originally filed

### Claims, No.:

1-16 as originally filed

### Drawings, sheets:

1/4-4/4 as originally filed

### Sequence listing part of the description, pages:

1-2, as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/00357

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- the entire international application.
- claims Nos. 5.

because:

- the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 5 are so unclear that no meaningful opinion could be formed (*specify*):  
**see separate sheet**
- the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- the written form has not been furnished or does not comply with the standard.
- the computer readable form has not been furnished or does not comply with the standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/00357

**1. Statement**

Novelty (N)	Yes:	Claims 3,6-14
	No:	Claims 1,2,4,15,16
Inventive step (IS)	Yes:	Claims 6-14
	No:	Claims 1-4,15,16
Industrial applicability (IA)	Yes:	Claims 1-4,6-16
	No:	Claims -

**2. Citations and explanations**  
**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00357

**Re Item III**

Since there is no sequence information as to the genomic DNA and its origin in **claim 5**, it is impossible for the skilled person to determine the scope of the claim. Hence, claim 5 contravenes Art 5 PCT and no opinion can be formed on novelty, inventiveness and industrial applicability of said claim (Art 34(4)(a)(ii) PCT).

**Re Item V**

The following documents are referred to in this communication:

D1: WO 97 31256 A

D2: EP-A-0 799 897

D3: WO 93 25563 A

The method according to the present application involves targeting polynucleotides composed of two parts: one part can hybridize to the target molecule and the second part can bind to a capture oligonucleotide which is immobilized on a solid support. The methods rely firstly on the binding of the target molecule comprised in a sample to the targeting polynucleotide and secondly on capturing the hybrid molecule by hybridization with the immobilized capture oligonucleotide. The capture oligonucleotides are arranged in arrays consisting of a plurality of immobilized capture oligonucleotides of different sequences and melting temperatures within a range of 16°C.

1 **Novelty (Art 33(2) PCT):**

- 1.1 **Claim 1** is not novel in view of each of documents D2 (p 4 | 54-56: capture oligonucleotides at pre-defined positionally distinct sites and p 4 | 35-45) and D3 (p 7 para 3; Example IV: p 14-16).

The same applies to **claims 2** and **4** (D2: p 5 | 1-7; D3: Fig 3).

- 1.2 **Claim 15** is anticipated by each of D1 (D1: claim 138, 145) and D2 (D2: p 5 | 8-14; p 4 | 35-45; claims 23 and 24). D2 also destroys the novelty of **claim 16**. Instructions for use are not considered to be a technical feature.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00357

1.3 **Claim 6** is novel, because none of the available documents describes an assay design embracing targeting polynucleotides and capture oligonucleotides that are immobilized on a solid support.

For the same reason also **claims 7-14** are novel.

**2 Inventive Step (Art 33(3) PCT):**

2.1 **Claim 3** does not appear to satisfy Art 33(3) PCT. Labelling the immobilized capture probes does not appear to solve a problem, because it is not apparent how the discrimination between captured and non captured target sequences can be accomplished (see appl. p 22 l 7-10), when only all the capture oligonucleotides are labelled.

2.2 **Claim 6** appears to comply with Art 33(3) PCT for the following reasons:

D1, which is considered to represent the closest prior art, describes a method which involves two targeting oligonucleotides and immobilized capture oligonucleotides. The subject-matter of claim 6 is distinguished from the method of D1 in that according to D1 a ligation step connects a labelled target specific oligonucleotide with an adjacent target-specific oligonucleotide that additionally contains a portion which is complementary to immobilized capture oligonucleotides, whereas the method according to claim 6 obviates the ligation step and provides for the detection by localization of the hybridized targeting oligonucleotide on the solid support.

The problem to be solved by the method of claim 6 can thus be regarded as the provision of an alternative method for detecting the presence or absence of test nucleic acid sequences in a sample.

None of the available documents renders the subject-matter of claim 6 obvious.

**Claims 7-9** seem to be inventive, accordingly.

2.3 **Claim 10** seems to satisfy Art 33(3) PCT for the following reasons:

D1 is considered to represent the closest prior art.

The subject-matter of claim 10 is distinguished from the disclosure of D1 in that according to claim 10 the detection is accomplished by incorporating a label into the cDNA during reverse transcription. Hence, again, the ligation step as required

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00357

for the method of D1 is omitted.

The problem solved by claim 10 can thus be regarded as the provision of an alternative detection method.

None of the available documents seems to render the subject-matter of claim 10 obvious. The same argument applies to the dependent **claims 11-13** and independent **claim 14**.

**Re Item VII**

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D2 and D3 is not mentioned in the description, nor are these documents identified therein.

**Re Item VIII**

- 1 **Claim 1** does not satisfy Art 6 PCT, because the expression "substantially the same melting temperature" is misleading and renders the scope of the claim unclear. According to the description, "substantially the same melting temperature" is supposed to mean the melting temperature of the average Tm of all immobilized oligonucleotides  $\pm 8^{\circ}\text{C}$  (p 5 l 10-14). This temperature range in the context of specific hybridization experiments does clearly not allow the designation "substantially the same temperature". In order to overcome this objection, the cited explanation given in the description (p 5 l 10-14) should have been incorporated into the claim.  
Similarly, independent **claims 6, 10, 14 and 15** need amendment, since the term "substantially" leads to uncertainty as to the scope for which protection is sought.
- 2 **Claim 5** does not satisfy Art 6 PCT, because the scope of the claim is not clearly defined, since it is not clear, as to what "genomic DNA" refers, because no origin of the genomic DNA is given and for most organisms the genomic DNA sequences are not yet known in their entirety.
- 3 **Claim 14** lacks an essential feature and hence does not satisfy Art 6 PCT:  
According to the application, the capture oligonucleotides immobilized on the solid support should each possess the same melting temperature (Tm) when

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00357

hybridized to their complementary sequences in particular where quantitative analyses is required like in the method of claim 14 (see p 25 l 26 - p 26 l 4). As each independent claim should contain all the essential technical features of the invention, said feature should have been introduced into claim 14.

# PCT

## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum) PHM 70478/WO

### Box No. I TITLE OF INVENTION

#### NOVEL MATRIX

### Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

ZENECA Limited  
15 Stanhope Gate  
London  
WIY 6LN

This person is also inventor.

Telephone No.  
+44-1625-516173

Faximile No.  
+44-1625-583358

Telex No.  
669095/669388

State (that is, country) of nationality:  
GB

State (that is, country) of residence:  
GB

This person is applicant  all designated States  all designated States except the United States of America  the United States of America only  the States indicated in the Supplemental Box

### Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

LITTLE, Stephen  
Gadbrook Park  
Northwich  
Cheshire GB

This person is:

applicant only

applicant and inventor

inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:  
GB

State (that is, country) of residence:  
GB

This person is applicant  all designated States  all designated States except the United States of America  the United States of America only  the States indicated in the Supplemental Box

Further applicants and/or (further) inventors are indicated on a continuation sheet.

### Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

agent

common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

BILL, Kevin  
Global Intellectual Property  
AstraZeneca UK Limited  
Mereside, Alderley Park, Macclesfield  
Cheshire. SK10 4TG - GB

Telephone No.

+44-1625-512461

Faximile No.

+44-1625-583358

Telex No.

669095/669388

Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

## Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTORS

*If none of the following sub-boxes is used, this sheet should not be included in the request.*

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

GIBSON, Neil James  
Gadbrook Park  
Northwich  
Cheshire GB

This person is:

- applicant only  
 applicant and inventor  
 inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:  
GBState (that is, country) of residence:  
GB

This person is applicant for the purposes of:  all designated States  all designated States except the United States of America  the United States of America only  the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

WHITCOMBE, David Mark  
Gadbrook Park  
Northwich  
Cheshire GB

This person is:

- applicant only  
 applicant and inventor  
 inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:  
GBState (that is, country) of residence:  
GB

This person is applicant for the purposes of:  all designated States  all designated States except the United States of America  the United States of America only  the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- applicant only  
 applicant and inventor  
 inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:  all designated States  all designated States except the United States of America  the United States of America only  the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- applicant only  
 applicant and inventor  
 inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:  all designated States  all designated States except the United States of America  the United States of America only  the States indicated in the Supplemental Box

Further applicants and/or (further) inventors are indicated on another continuation sheet.

**Box No.V DESIGNATION OF STATES**

The following designations are hereby made under Rule 4.9(a)(mark the applicable check-boxes; at least one must be marked):

**Regional Patent**

- AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> AL Albania .....                               | <input checked="" type="checkbox"/> LS Lesotho .....  |
| <input checked="" type="checkbox"/> AM Armenia .....                               | <input checked="" type="checkbox"/> LT Lithuania .....  |
| <input checked="" type="checkbox"/> AT Austria .....                               | <input checked="" type="checkbox"/> LU Luxembourg .....   |
| <input checked="" type="checkbox"/> AU Australia .....                             | <input checked="" type="checkbox"/> LV Latvia .....   |
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| <input checked="" type="checkbox"/> BB Barbados .....                              | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia .....                            |
| <input checked="" type="checkbox"/> BG Bulgaria .....                              | <input checked="" type="checkbox"/> MN Mongolia .....   |
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| <input checked="" type="checkbox"/> FI Finland .....                               | <input checked="" type="checkbox"/> SI Slovenia .....   |
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| <input checked="" type="checkbox"/> JP Japan .....                                 | <input checked="" type="checkbox"/> YU Yugoslavia .....   |
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| <input checked="" type="checkbox"/> KZ Kazakhstan .....                            |   |
| <input checked="" type="checkbox"/> LC Saint Lucia .....                           | <input checked="" type="checkbox"/> DM DOMINICA <input checked="" type="checkbox"/> ZA SOUTH AFRICA .....         |
| <input checked="" type="checkbox"/> LK Sri Lanka .....                             | <input checked="" type="checkbox"/> UE UNITED ARAB EMIRATES <input checked="" type="checkbox"/> TZ TANZANIA ..... |
| <input checked="" type="checkbox"/> LR Liberia .....                               | <input checked="" type="checkbox"/> CR COSTA RICA <input checked="" type="checkbox"/> MA MOROCCO .....            |

Check-boxes reserved for designating States (for the purposes of a national patent) which have become party to the PCT after issuance of this sheet:

- DM DOMINICA  ZA SOUTH AFRICA .....
- UE UNITED ARAB EMIRATES  TZ TANZANIA .....
- CR COSTA RICA  MA MOROCCO .....

**Precautionary Designation Statement:** In addition to the designations made above the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application: regional Office	international application: receiving Office
item (1) 11/02/1999 (11Feb1999)	9902970.4	GB		
item (2)				
item (3)				

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present International application is the receiving Office) identified above as item(s) (1)

\* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

#### Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):  ISA /	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):  Date (day/month/year) _____ Number _____ Country (or regional Office) _____
---	---

#### Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets:  request : 4 description (excluding sequence listing part) : 45 claims : 4 abstract : 1 drawings : 4 sequence listing part of description : 2  Total number of sheets : 60	This international application is accompanied by the item(s) marked below:  1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input checked="" type="checkbox"/> separate signed power of attorney 3. <input type="checkbox"/> copy of general power of attorney; reference number, if any: 4. <input type="checkbox"/> statement explaining lack of signature 5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): 6. <input type="checkbox"/> translation of international application into (language): 7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 8. <input checked="" type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form 9. <input type="checkbox"/> other (specify): _____
---	--

Figure of the drawings which should accompany the abstract:	Language of filing of the international application: English
---	--

#### Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).



BILL, Kevin  
AGENT FOR APPLICANT

For receiving Office use only		
1. Date of actual receipt of the purported international application:		2. Drawings:  <input type="checkbox"/> received:  <input type="checkbox"/> not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA /		
6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.		

For International Bureau use only	
Date of receipt of the record copy by the International Bureau:	

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>PHM 70478/WO</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 00/ 00357</b>	International filing date (day/month/year) <b>08/02/2000</b>	(Earliest) Priority Date (day/month/year) <b>11/02/1999</b>
Applicant <b>ASTRAZENECA UK LIMITED</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the language, the International search was carried out on the basis of the International application in the language in which it was filed, unless otherwise indicated under this item.
  - the International search was carried out on the basis of a translation of the International application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the International application, the International search was carried out on the basis of the sequence listing :
  - contained in the International application in written form.
  - filed together with the International application in computer readable form.
  - furnished subsequently to this Authority in written form.
  - furnished subsequently to this Authority in computer readable form.
  - the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the International application as filed has been furnished.
  - the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2.  Certain claims were found unsearchable (See Box I).

3.  Unity of invention is lacking (see Box II).

4. With regard to the title,

- the text is approved as submitted by the applicant.
- the text has been established by this Authority to read as follows:

**OLIGONUCLEOTIDE ARRAY AND METHODS OF USE**

5. With regard to the abstract,

- the text is approved as submitted by the applicant.
- the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

- as suggested by the applicant.
- because the applicant failed to suggest a figure.
- because this figure better characterizes the invention.

None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 00/00357

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 31256 A (BLOK HERMAN ;BARANY GEORGE (US); KEMPE MARIA (US); ZIRVI MONIB (US) 28 August 1997 (1997-08-28) see whole doc. esp. claim 13 ---	1-5
X	EP 0 799 897 A (AFFYMETRIX INC) 8 October 1997 (1997-10-08) see whole doc., esp. claims 10,11 ---	1-5
Y	GB 2 312 747 A (ZENECA LTD) 5 November 1997 (1997-11-05) the whole document ---	6-16
Y	EP 0 416 817 A (ICI PLC) 13 March 1991 (1991-03-13) cited in the application see whole doc. esp. claims ---	6-16
	-/-	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the International filing date but later than the priority date claimed

- "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the International search

31 May 2000

Date of mailing of the International search report

07/06/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Müller, F

**INTERNATIONAL SEARCH REPORT**

International Application No

PCT/GB 00/00357

**C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 93 25563 A (HOPE CITY ;WALLACE ROBERT BRUCE (US)) 23 December 1993 (1993-12-23) see whole doc. esp. claims and figures -----	6-16
A	OLD J M: "DETECTION OF MUTATIONS BY THE AMPLIFICATION REFRACTORY MUTATION SYSTEM (ARMS)" METHODS IN MOLECULAR BIOLOGY, US, HUMANA PRESS INC., CLIFTON, NJ, vol. 9, 1991, pages 77-84, XP000775640 the whole document -----	

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/00357

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9731256	A	28-08-1997	AU 2799797 A	10-09-1997	
			CA 2244891 A	28-08-1997	
			EP 0920440 A	09-06-1999	
EP 0799897	A	08-10-1997	NONE		
GB 2312747	A	05-11-1997	AU 2704997 A	26-11-1997	
			EP 0896630 A	17-02-1999	
			WO 9742345 A	13-11-1997	
EP 0416817	A	13-03-1991	AT 144290 T	15-11-1996	
			AU 622349 B	02-04-1992	
			AU 6118490 A	14-03-1991	
			DE 69028891 D	21-11-1996	
			DE 69028891 T	13-03-1997	
			GB 2235689 A,B	13-03-1991	
			JP 3272686 A	04-12-1991	
			NZ 235015 A	26-03-1992	
			US 5525494 A	11-06-1996	
WO 9325563	A	23-12-1993	CA 2115342 A	23-12-1993	
			AU 674127 B	12-12-1996	
			AU 2251192 A	04-01-1994	
			EP 0607151 A	27-07-1994	
			JP 6509946 T	10-11-1994	
			US 5981176 A	09-11-1999	

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/00357

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Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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		-/-

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- "&" document member of the same patent family

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Fax: (+31-70) 340-3016

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Müller, F

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 00/00357

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

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WO 9731256	A 28-08-1997	AU 2799797 A CA 2244891 A EP 0920440 A		10-09-1997 28-08-1997 09-06-1999
EP 0799897	A 08-10-1997	NONE		
GB 2312747	A 05-11-1997	AU 2704997 A EP 0896630 A WO 9742345 A		26-11-1997 17-02-1999 13-11-1997
EP 0416817	A 13-03-1991	AT 144290 T AU 622349 B AU 6118490 A DE 69028891 D DE 69028891 T GB 2235689 A,B JP 3272686 A NZ 235015 A US 5525494 A		15-11-1996 02-04-1992 14-03-1991 21-11-1996 13-03-1997 13-03-1991 04-12-1991 26-03-1992 11-06-1996
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